

# **Morgan State University Network Research Training Site High Performance Computing Partnerships**

**A NASA Goddard Space Flight Center/MU-SPIN Program**

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# Maryland's Urban University

- ◆ Ranks 1st nationally among public colleges & universities (and 4th overall) whose science majors go on to earn Ph.D.'s
- ◆ Newly renovated science complex, new engineering facility and engineering annex
- ◆ New Master's and Doctoral Programs in Engineering Approved

## Region II

- ◆ Maryland, Indiana, Ohio, West Virginia, Delaware, and Pennsylvania
- ◆ Satellites
  - Bowie State University  
Dr. Nagi T. Wakim
  - Central State University  
Dr. Kamyar Dezhgosha

# Network Resource Training Site

- ◆ High Performance Computational Science and Engineering
- ◆ Enhancement of research capabilities
- ◆ Graduate engineering curriculum
  - work experience requirement

# Foundation of Technical Plan

- ◆ University technological capabilities
- ◆ Outreach/teacher training to NRTS partners
  - elementary, middle, high schools and colleges
- ◆ Initial connectivity to the Internet
- ◆ In-house training

# Internet Connectivity

- ◆ Initial - partial T-1, 56K shared line from U of Maryland, available only to specified departments
- ◆ Current - 10MBSMDS Direct Connect, 100MBBackbone
- ◆ Cost -\$11,500.00

# INFRASTRUCTURE IMPROVEMENTS

- ◆ Silicon Graphics Lab
- ◆ Network Lab
- ◆ Computer Construction  
(Senior Project)
- ◆ Ability to use internet in class
- ◆ Web Page Student Project
- ◆ Lab Construction
- ◆ Lab Equipment

# MSU - Research Infrastructure

- ◆ Cray J916 interconnects computing facilities of HBCUs and other minority universities with the NASA science network
- ◆ Campus totally connected via fiber cable
- ◆ 10 megabit SMDS
- ◆ Internet and computer resources
- ◆ Silicon Graphics Challenge & Indigo's
- ◆ PC and terminal labs



# Morgan NRTS Impact

- ◆ 6 elementary schools
- ◆ 2 middle schools
- ◆ 2 high schools
- ◆ 7 colleges
- ◆ apprx. 24,930 pre-college & college students
- ◆ 1,700 pre-college & college teachers
- ◆ Waiting List

# Summer Workshop

- ◆ Pre-College Teachers
- ◆ Creating a new paradigm
  - Access
  - Training

# Summer Workshop (con't)

## ◆ College Level Teachers

- Advanced search and access techniques
- Overview of Internet mechanics
- Variety of information resources
- Download to hard copy
- Discussion/user group

# FACULTY CONNECTED

- ◆ MSET Connected Before NRTS 100
- ◆ MSET Connected Since NRTS 7,000
- ◆ MSET Connected As A Result of NRTS 6,900

# STUDENTS CONNECTED

- ◆ MSET Students Before NRTS 50
- ◆ MSET Students Since NRTS 6,280
- ◆ MSET Students As A Result of NRTS 6,230

# NEW RESEARCH ACTIVITIES RESULTING FROM NRTS

- ◆ Networks COSC 349
- ◆ Strategies & Concepts  
of Networking Sys. COSC 357
- ◆ Dr. Lee Research
- ◆ Dr. Tannouri Graphics
- ◆ Dr. Stojkovic Expert  
Systems

# NEW CURRICULAR/EDUCATION PROGRAMS

- ◆ COSC 349
- ◆ COSC 357
- ◆ COSC 490
- ◆ Training Workshops
- ◆ Technical Workshops

# NRTS TOTAL ACTIVITY

(NETWORK MANAGEMENT/USER SUPPORT)

- ◆ Identification
- ◆ Installation
- ◆ Connectivity
- ◆ Training
- ◆ Support



# Collaborations with NAVO and Stennis Space Center

- ◆ Diversified cadre of well-trained scientists and engineers
- ◆ Visiting scientists
- ◆ Course development

# Collaborative Research At MSU

- ◆ Network Research Training Site (Computer Science)
  - The National Urban Technology Center
  - Multimedia educational software development
- ◆ Research Infrastructure for Minority Institutions (University)

# COLLABORATIVE PARTNERSHIPS

- ◆ TECCO - Al J. Bra
- ◆ NTA - 3T Mentor Program
- ◆ EarthCam (Southern High School)
- ◆ Harlem Park Middle,  
Gilmore Elementary  
Sinclair Lane Elementary

# Future Collaborations

- ◆ NASA Langley Research Center (Hampton, VA)
  - ◆ Minority Institutions of Higher Education Research Strategies and Funding Opportunities Workshop
- ◆ NASA Ames Research Center (Mountainview, CA)
  - NREN Project

# COMMERCIALIZATIONS

- ♦ Al J. Bra
- ♦ E.N. (EdutaiNment)

# FACTORS THAT AIDED IN ACHIEVING NRTS GOALS AND OBJECTIVES

- ◆ FUNDING
- ◆ QUALIFIED PERSONNEL
- ◆ UNIVERSITY SUPPORT
- ◆ STATE CONTRACTED VENDORS
- ◆ COMPETITIVE VENDING

# FACTORS THAT HINDERED ACHIEVEMENT OF NRTS GOALS & OBJECTIVES

- ◆ PROCUREMENT ADMINISTRATIVE SYSTEM (Inordinate Amount of Time)
- ◆ TIMELY FUNDING BY NASA
- ◆ UNTIMELY LOSS OF PERSONNEL

# RECOMMENDATIONS

- ◆ CONTINUATION OF PROJECT
- ◆ MAINTENANCE LEVEL FUNDING
- ◆ TECHNICAL SUPPORT
- ◆ TRAINING



# The End

